

Remarks

The final Office Action of July 19, 2006 has been carefully reviewed and this response addresses the Examiner's concerns.

I. Statement of Substance of the Interview

Applicant wishes to thank Examiner Duong for the telephone interview granted Applicant's attorney, Jacob N. Erlich, and Applicant on September 19, 2006. During that interview, all of the pending claims were discussed and, in particular, based upon the interview, Applicant has included the subject matter of claims 7 and 18 within independent claims 1 and 14, respectively, in order to more clearly define the fact that the present invention deals with a method for fabricating a diffractive or non-dispersive polymer dispersed liquid crystal (PDLC) electrooptic device.

II. Status of the Claims

Claims 1, 4-17 and 19-24 are pending in this application.

Claims 7 and 18 have been canceled without prejudice.

Claim 1 has been amended to incorporate the limitations of claim 7.

Claims 8 and 9 have been amended to depend from amended claim 1.

Claim 14 has been amended to incorporate the limitations of claim 18.

Claims 19 and 20 have been amended to depend from amended claim 14.

III. The 35 USC §103(a) Rejections

Claims 1, 4-6 and 14-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. (US 5,625,473) in view of Obikawa et al. (US 5,200,110).

Claims 7-9, 12, 18-20 and 23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. (US 5,625,473) in view of Obikawa et al. (US 5,200,110) and further in view of Sumiyoshi et al. (US 6,278,506).

Claims 10-12 and 21-23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. (US 5,625,473) in view of Obikawa et al. (US 5,200,110) and Sumiyoshi et al. (US 6,278,506) and further in view of Popovich (US 6,339,486).

During the telephone interview between the Examiner, Applicant and Applicant's attorney, it was pointed out to the Examiner that there is a substantial difference between the claims as presented in this application and the references utilized in the rejections set forth above. More specifically, all the present claims as now set forth in this application are directed to the method of fabricating a diffractive or a non-dispersive polymer dispersed liquid crystal electrooptic device. This novel method is now further defined by the inclusion within independent claims 1 and 14 of the step of "deriving said spatially inhomogeneous illumination source used to photo-cure the nematic/pre-polymer mixture from the interference of two coherent optical beams within said cell." By providing this additional step together with the already clearly defined steps within the claims, the claims as now presented should be found to be allowable over the prior art of record.

Further supporting the patentability of the presently-claimed invention and as discussed during the interview, the basic Kondo et al. patent deals with the making of a twisted nematic (TN), super twisted nematic (STN), electrically controlled birefringence (ECB), or ferroelectric liquid crystal (FLC) mode display device [22:6-13] that contains liquid crystal regions in the pixel areas [2:7-9]. In contrast, Applicant claims a method for making a "polymer dispersed liquid crystal" (PDLC) electrooptic devices including the step of deriving the spatially inhomogeneous illumination source used to photo-cure the nematic/pre-polymer mixture from the interference of two coherent optical beams within the cell [independent claims 1 and 14]. Note that Kondo et al. clearly does not make a PDLC mode device, and Applicant's claimed invention does not disclose or deal with TN, STN, ECB, or FLC mode devices.

Contrary to Kondo et al., Applicant claims a unique method for making a PDLC electrooptic device. Kondo et al., on the other hand, makes a display device using a photomask (see Fig. 18) to cover pixel regions so that large, liquid crystal regions are formed (in the pixels) [2:5-9]. Applicant's invention illuminates an entire device, including the pixel, or beam-transmitting region with interfering lasers so that transmitted light during use must pass through a nanometer-scale network of polymer and liquid crystal [see Figs. 2 and 4] – i.e. a PDLC.

Applicant's claimed invention and Kondo et al. describe different technologies and Kondo et al., even in combination with Obikawa et al., Sumiyoshi et al. and/or Popovich, cannot meet Applicant's claimed inventory. Further support for the patentability of Applicant's invention is as follows:

- Kondo et al.'s devices switch with ≤ 7 volts (Figs. 4 and 5); Applicant's claimed devices switch at > 100 volts (Fig. 5 shows $8 \text{ volts}/\mu\text{m} \times 15.4 \mu\text{m} = 123 \text{ volts}$). This is indicative of the difference between a PDLC (Applicant) and a TN, STN, ECB, or FLC (Kondo et al.).
- Kondo et al.'s liquid crystal regions (item 122 in Fig. 21) measure $> 100 \mu\text{m}$; Applicant's claimed PDLC grating structures are $< 2 \mu\text{m}$ long (Λ in Figs. 2b, c).

Furthermore, the major deficiencies in the Kondo et al. reference cannot be corrected by the utilization of any of the secondary references Obikawa et al., Sumiyoshi et al., and/or Popovich. Detailed remarks providing the deficiencies of all of the references have been provided previously in the response to the Office Action dated December 15, 2005 and are incorporated herein by reference once again.

IV. Conclusion

In conclusion, in view of the above remarks, Applicant respectfully requests the Examiner enter this amendment which clearly places the pending claims in condition for allowance and promptly pass this case to issue. It should be further noted that the amendments to the claims do not contain new matter and the subject matter included therein finds basis both in the original specification and original claims 7 and 18. In view thereof, no new search is required and the amendment should be entered.

No fees are believed necessary for the consideration of this response. However, in the event that fees are deemed necessary, the Director of Patents and Trademarks is hereby authorized to charge such fees, or to credit any overpayments, to Deposit Account 50-3718.

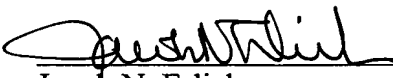
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Response to Office Action dated September 28, 2006

Response to Final Office Action of July 19, 2006

The Examiner is invited to call the undersigned attorney at (617) 345-3000 should he determine that a telephonic interview would expedite prosecution of this case.

Respectfully submitted,
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